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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/707,045

11/18/2003

Daniel J. Weyers

GEM 0230PA

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27256

7590

04/01/2009

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EXAMINER

RAMIREZ, JOHN FERNANDO

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

04/01/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/707,045	<b>Applicant(s)</b> WEYERS ET AL.	
	<b>Examiner</b> JOHN F. RAMIREZ	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/26/09 has been entered.

### ***Response to Arguments***

Applicant's arguments filed 01/26/09 have been fully considered.

With respect to claims 1, 10, 12, 14 and 19 the rejection under 103(a) using Reisker et al. and Petropoulos, applicant alleges on page 8 of the remarks that both of these references use a balun-based cables for driving the imaging coil, whereas applicant's invention is a balun-less drive cables as now amended. However, the Reisker reference teaches many different ways to drive the birdcage coil (see different embodiments in col. 9, lines 1-42, col. 10, lines 5-60 and col. 11, lines 1-60).

In addition, a new office action has been made in view of newly found prior art in order to show the conventionality of this new enhancement.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-5, 7-10, 12-16, 18-20, 24 and 25** rejected under 35 U.S.C. 103(a) as being unpatentable over **Reisker et al. (US 6,344,745) in view of Murphy-Boesch et al. (US 5,194,811) or Srinivasan et al. (US 5,202,635) or Petropoulos et al. (US 6,788,058), and in further view of JP application 07001825.**

In relation to claims 1-2, 7-10, 12-16, 18-20, 24 and 25. Reisker et al. in view of of Murphy-Boesch et al., or Srinivasan et al., or Petropoulos et al. teach all the limitations of the claimed subject matter as discussed in the previous office actions, except for mentioning specifically that the imaging coil can thereby be driven by its balun-less drive cables as amended in the claims. However, Reisker et al. discloses in col. 10, line 45 - col. 11, line 60 includes electrically driving the tapered birdcage resonator either linearly, in quadrature, or in phased array mode at either of the tapered or non-tapered end rings, or electrically driving the resonator on any of the legs of the resonator.

In the same field of endeavor, JP application 07001825, teaches or suggest the use of a birdcage coil for MRI that is driven by RF chokes (inductors, diodes) respectively coupled to the end rings as seen in figures 1, 4 and 9 and respective disclosure in paragraphs 003-0004, 0018, 0024.

In relation to **claims 3-5**, Reisker, et al. discloses wherein each of the end rings has a radius that is at least 1.0 cm greater than the radius of the central ring, wherein each radius of the end rings is within a range defined from 30.5cm and to 32.5cm, and

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wherein the radius of the central ring is less than 31.5 cm are a design consideration within the skill of the art. A change in the size of a prior art device is merely a design choice. In re Rose, 220 F. 2d 459, 105 USPQ 237 (CCPA 1955).

Based on the above observations, for a person of ordinary skill in the art, modifying the coil system disclosed by Reisker et al. in view of Murphy-Boesch et al., or Srinivasan et al., or Petropoulos et al, with the above discussed enhancements would have been considered obvious because such modifications would have improved capacitance, homogeneity and simultaneously, high signal to noise ratio performance of birdcage coils, resulting in better image quality.

**Claims 6, 11, 17, and 21-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Reisker et al. (US 6,344,745) in view of Murphy-Boesch et al. (US 5,194,811) or Srinivasan et al. (US 5,202,635) or Petropoulos et al. (US 6,788,058) or Burl et al. (US 6,396,271)** and in further view of JP application 07001825.

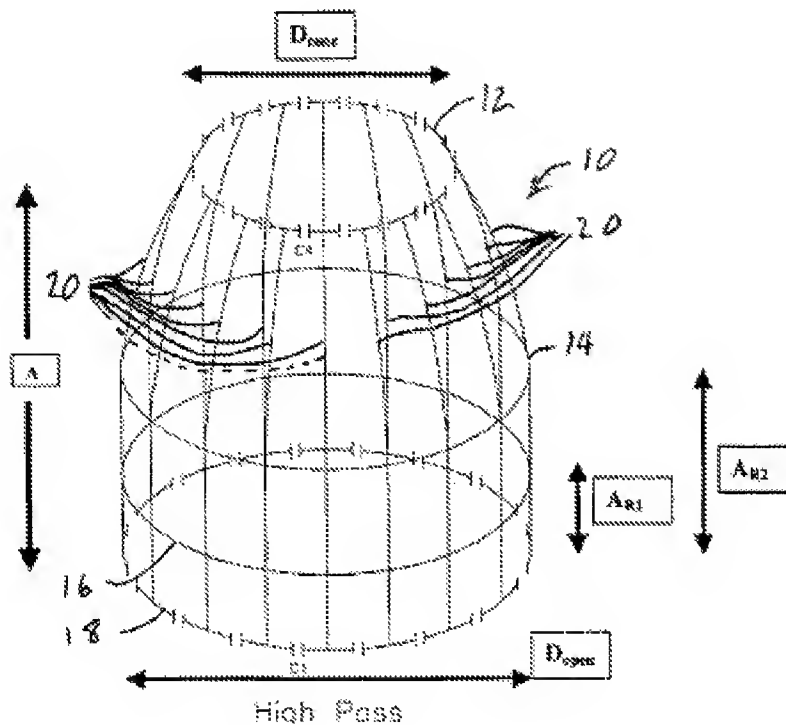


Figure 1

Reisker et al. in view of Murphy-Boesch et al., or Srinivasan et al., or Petropoulos et al. in further view of JP application 07001825 teach all the limitations of the claimed subject matter as discussed above in claims 1, 10, 12, 14 and 19 except for mentioning specifically an imaging coil comprising a plurality of capacitors have low impedance at frequency levels of at least 120MHz, wherein the end rings are closer to the radio frequency shield than the at least one center ring, and wherein the end rings are farther away from the patient bore than the at least one center ring.

However, an imaging coil comprising a plurality of capacitors have low impedance at frequency levels of at least 120MHz, wherein the end rings are closer to the radio frequency shield than the at least one center ring, and wherein the end rings are farther away from the patient bore than the at least one center ring are considered

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conventional in the art as evidenced by the teachings of Burl et al. and Petropoulos et al.

The Petropoulos et al. patent teaches plurality of capacitors have low impedance at frequency levels of at least 120MHz (see fig.10, C1, C4; col. 2 lines 1-41), wherein the end rings are closer to the radio frequency shield than the at least one center ring (see figures 1 and 4), and wherein the end rings are farther away from the patient bore than the at least one center ring (see figures 1-10). Moreover, Burl et al. teaches plurality of capacitors have low impedance at frequency levels of at least 120MHz (col. 5, lines 35-51).

Additionally, the limitations in which the end rings are closer to the radio frequency shield than the at least one center ring, and wherein the end rings are farther away from the patient bore than the at least one center ring are a change in the shape of a prior art device, therefore is a design consideration within the skill of the art. In re Dailey, 357 F. 2d 669, 149 USPQ 47 (CCPA 1966).

Based on the above observations, for a person of ordinary skill in the art, modifying the coil system disclosed by Reisker et al., with the above discussed enhancements would have been considered obvious because such modifications would have improved capacitance, homogeneity and simultaneously, high signal to noise ratio performance of birdcage coils, resulting in better image quality.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN F. RAMIREZ whose telephone number is (571)272-8685. The examiner can normally be reached on (Mon-Fri) 7:00 - 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/  
Supervisory Patent Examiner, Art  
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/J. F. R./  
Examiner, Art Unit 3737